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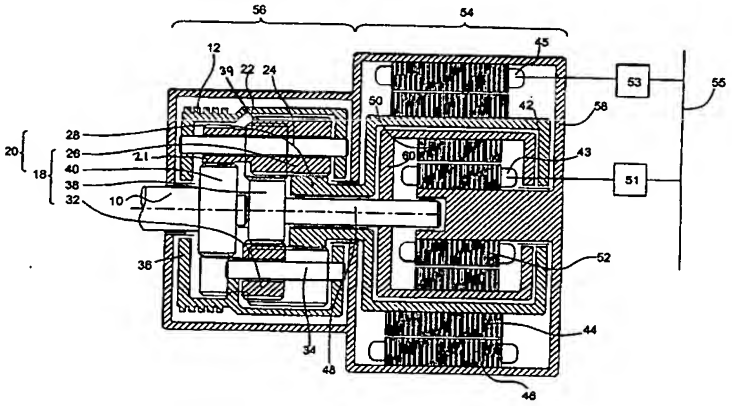
(54) Title: FOUR BRANCH DIFFERENTIAL TRANSMISSION SYSTEMS



(57) Abstract: A four branch differential transmission system comprises a first shaft (10) and a second shaft (12), which constitute the input and output shafts, a third shaft (42) connected to a first variator (44, 46) arranged to increase or decrease its speed and a fourth shaft (48) connected to a second variator (50, 52) arranged to increase or decrease its speed. The four shafts are connected together by a spur gear compound epicyclic gearset including a plurality of toothed gearwheels. The compound gearset comprises first and second epicyclic gearsets, the first epicyclic gearset being of positive type and comprising a first sun wheel (40) and a second sun wheel (28) in mesh with a respective set of first and second planet wheels (21; 26). Each first planet wheel (21) is connected to rotate with a respective second planet wheel (26) about a respective common planet shaft (24). The planet shafts (24) are connected to a common planet carrier (22). The second epicyclic gearset is of negative type and comprises the first sun wheel (4) and a third sun wheel (38), the third sun wheel being in mesh with a set of third planet wheels (39), each of which is connected to rotate with a respective first and second planet wheel about a respective planet shaft (24). The first and third planet wheels (21; 39) of each connected set of planet wheels are of different diameter and are connected together to constitute a stepped composite planet wheel.

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